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OPERATOR'S MANUAL

WARNING

For safe usage, it is essential that the operator read this manual carefully before using the instrument for any measurements.

5000 VOLTS A.C. PROBE
(5000 OHMS PER VOLT)
CATALOGUE NO. 0505

SIMPSON ELECTRIC COMPANY
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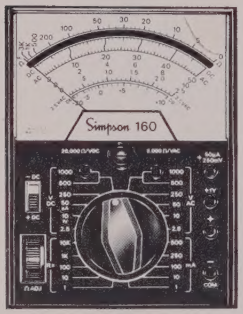

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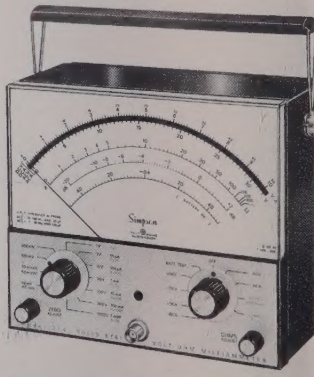

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OPERATOR'S MANUAL

5000 VOLTS A.C. PROBE

(5000 OHMS PER VOLT)

CATALOGUE NO. 0505

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Area Code 312, Telephone 695-1121
In Canada, Bach-Simpson, Ltd., London, Ontario

Printed in U.S.A.
7-74 HINZ 5000

Part No. 5-115350

WARNING:

VOLTAGES ENCOUNTERED WITHIN THE CAPABILITY OF THIS PROBE ARE DANGEROUS AND CAN BE FATAL. WHILE THE PROBE ITSELF IS ENGINEERED TO BE WHOLLY SAFE WHEN PROPERLY USED, NO PRODUCT DESIGN, HOWEVER GOOD, CAN RENDER SAFE AN INSTRUMENT WHICH IS USED CARELESSLY. THEREFORE, THE OPERATING INSTRUCTIONS FOR THE PROBE AND THOSE FOR THE VOM WITH WHICH IT IS USED MUST BE FOLLOWED.

INTRODUCTION

GENERAL DESCRIPTION:

The 5000 volt A.C. probe extends the A.C. voltage range of a 5 000 ohms per volt multimeter in a convenient manner when properly applied and used. Its only purpose is the measurement of potentials up to 5 000 volts A.C. As a safety precaution to the user, the probe should be used to measure only voltage sources having a power capability not exceeding 75 watts peak output or 50 watts continuous output.

The probe is used with the Simpson Catalogue No. 0115 test leads by screwing it onto the tip of the red probe in place of the alligator clip that is furnished with the test lead. It may be used with any multimeter which has an A.C. voltage sensitivity of 5 000 ohms per volt and full scale A.C. voltage ranges of from 2.5 through 10 volts, preferably 2.5 volts as on the Simpson 260*® Series 6. When the VOM is operated at the 2.5 V. A.C. range and at full scale, the voltage drop across the VOM is 2.5 volts. The balance of the voltage drop is across the resistor inside the 5000 volt probe, provided that the VOM and the probe are both in good working order.

APPLICATION:

The 5000 volt A.C. probe is designed specifically for use with the Simpson 260® Series 6, Series 6P and 270 Series 4, all of which are furnished with 0115 test leads. However, it can be used with any 5 000 ohms per volt multimeter that has scale graduations of 0-50 or multiple thereof such as the 260® Series 5, Series 5P, 270 Series 3, 261, 255 or 250. When used with these Simpson multimeters or any earlier 260® with banana jack terminations, it will be necessary to purchase Simpson Catalogue No. 0115 test leads.

*"260" IS THE REGISTERED TRADEMARK OF THE SIMPSON ELECTRIC COMPANY

The 5000 volt A.C. probe can be used with the original 260 or the 260-2 which require test leads whose elbow prods terminate in .080 diameter pins. These earlier 260's will require Simpson Catalogue No. 8463 test leads for use with the 5000 volt probe.

ACCURACY:

The tolerance of the probe resistor is $\pm$ 2% but the VOM error must also be considered. The total error becomes the algebraic sum of the probe tolerance and the VOM error.

SAFETY PRECAUTIONS

REMEMBER THAT FAILURE TO HEED THE FOLLOWING SAFETY PRECAUTIONS MAY RESULT IN A SERIOUS OR FATAL ACCIDENT.

The 0505 probe is designed to prevent accidental shock when properly used. However, no engineering design can render safe an instrument which is used carelessly. Therefore, always observe the following safety precautions when making high-voltage measurements:

1. Do not work alone. Notify another person that you are making high-voltage tests.
2. The voltage being measured must not exceed a potential of 5 000 volts A.C. (RMS) or peak potential of 7070 volts. The frequency of the A.C. voltage must not exceed 400 Hz.

3. Use extreme caution in making measurements on electrical equipment whose continuous power rating is greater than 10 watts.

4. Remember high voltage may appear unexpectedly in defective equipment. An open bleeder resistor may result in a capacitor retaining a dangerous charge. Turn off power and discharge all capacitors before connecting or disconnecting the probe from the circuit being measured.

5. Locate all high-voltage points before work is started.

6. For your own safety, inspect the probe and test leads for cracks, breaks or crazes in the insulation before each use. If any cracks, breaks or crazes appear, replace the probe or test lead immediately. The probe must be free of dirt, dust, grease and moisture.

7. Do not make measurements in a circuit where corona is present. Corona can be identified by a pale-blue color emanating from a sharp metal object in the circuit, from the odor of ozone and from the corona's sound.

8. Insure that an electrical connection exists to the ground of the equipment under test. An open circuit, such as from a burned-out fuse in the VOM or an open ground connection will place the full voltage from the probe at the VOM input jacks.

9. Hands, shoes, floor and workbench must be dry. When working on a concrete or steel floor, stand on a rubber mat or material of equivalent insulation. The mat must withstand the voltage being measured in the environment in which it is being used. That is, precautions must be taken in the presence of moisture and fumes or other environmental conditions that will affect the dielectric withstanding voltage of the insulating material. In addition, the rubber mat or other insulating material must be sufficiently thick to withstand the voltage of the circuit being measured.

10. Do not touch any object that can provide a ground.

11. For maximum safety, avoid holding the probe while the power to the test circuit is turned on. If the probe must be held while making voltage measurements, the following precautions must be observed:

    a. Grasp only by the 3/8" diameter handle of the 0115 test lead probe.

    b. Do not allow any part of the hand to come in contact with the surface of the probe body. Keep hand away from all high-voltage points in the circuit under test. Keep the disc barriers of the probe between the high-voltage test point and your hand.

    c. Work with one hand, keeping the other hand in your pocket.

12. When servicing television receivers, remember that many picture tubes have conductive coatings that act as a capacitor. A high-voltage charge may be present even with the receiver turned off.

OPERATING INSTRUCTIONS

NOTE: THE SIMPSON 0505 PROBE IS DESIGNED FOR MEASURING ONLY A.C. VOLTAGE. DO NOT MEASURE D.C. VOLTAGE WITH THE PROBE.

1. Screw the alligator clip with the black rubber insulator onto the black probe of the 0115 test lead. Clip the black probe to the ground or chassis of the circuit being tested.

2. Connect the black elbow plug to the minus or COMMON jack and the red elbow plug to the POSITIVE jack of the VOM.

3. Set the range selector to 2.5 volts and the function switch to A.C.

4. Screw the 5000 volt A.C. probe, which is YELLOW in color, securely onto the tip of the RED probe of the 0115 test leads. Screw the alligator clip with the red rubber insulator onto the tip of the 5000 V. A.C. probe.

5. Turn off power to the test circuit and be sure that all capacitors have been discharged. Connect the alligator clip of the 5000 volt probe to the point being measured.

6. Turn on the power in the test circuit. Do not touch the probe body, test leads or VOM.

7. Read the voltage on the 0-50 volt A.C. scale and multiply by 100. This is the upper of the 2 red scales on the 260. Do not use the "2.5 V. A.C. ONLY" scale even though the range selector switch has been rotated to the 2.5 V. range.

8. Turn off the power and allow any capacitors in the circuit being measured to discharge. Disconnect the 5000 volt probe and the black test lead.

MAINTENANCE

The probe body must always be kept clean and dry. To clean, use a mixture of 5 parts of Joy, a mild detergent, and 95 parts of water. Rinse with clean water. Use detergent solution sparingly. DRY THOROUGHLY before using probe. Do not use solvents such as gasoline, toluene, trichloroethylene, acetone or alcohol to clean the probe body. They will craze or dissolve the material, thus destroying its insulating qualities.

The probe body is made of polystyrene which begins to soften at approximately 190°F and melts at approximately 300°F. To prevent distortion or other damage, caution must be exercised when using the probe near equipment or components that operate at high temperature.

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